



Jean Natoli

# Yeasts and organic wines

This focus on organic wines allows us to look at several basic rules of oenology. On the subject of using native or industrially cultured wine yeasts, winemakers and specialists have been known to argue violently. It is a very sensitive subject, so we will start by recalling some objective facts that are beyond debate. Without yeast, there would be no wine. The legal definition of wine is 'a product resulting exclusively from the total or partial alcoholic fermentation of pressed or unpressed grapes or grape must'. This alcoholic fermentation is achieved by yeast.

**T**he existence of wine yeast has only been known since the research of Pasteur. About 150 years ago, he demonstrated that alcoholic fermentation occurs when these micro-organisms are in an airless environment. Before this time, people knew how to make wine, but did not understand what caused its transformation. It was attributed to a sort of spontaneous decomposition of the organic matter.

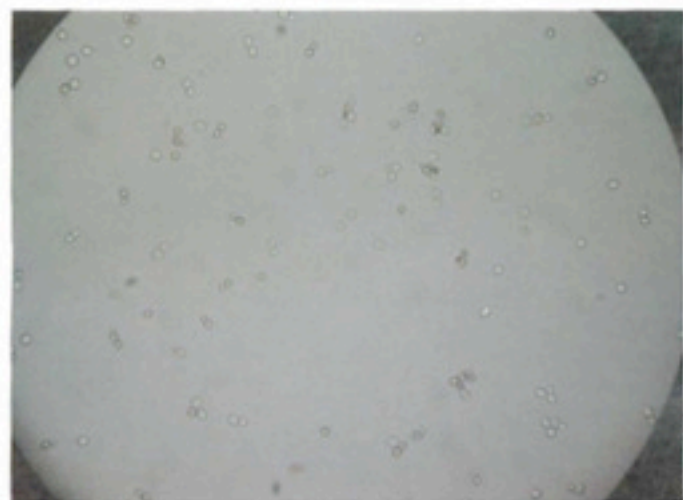
Since Pasteur's discovery, winemakers, scientists and, later, oenologists, have tried to reproduce and streamline this crucial stage in making wine. It was noticed that fermentation occurred more easily in high-yeast environments, and also that certain wineries had more successful fermentation than others. As a result, the logic was to isolate and then multiply the yeast strains judged the most qualitatively useful, like a gardener would select the best vegetables.

An entire industry developed around commercialising yeast strains that had useful characteristics, including increased resistance to high levels of sugar or alcohol, low production of volatile acidity, fermentation capacity at high or low temperatures, or particular aromatic profiles. This selection process did not involve genetic manipulation; it was based simply on isolating identified yeasts and selecting them for their objective characteristics.

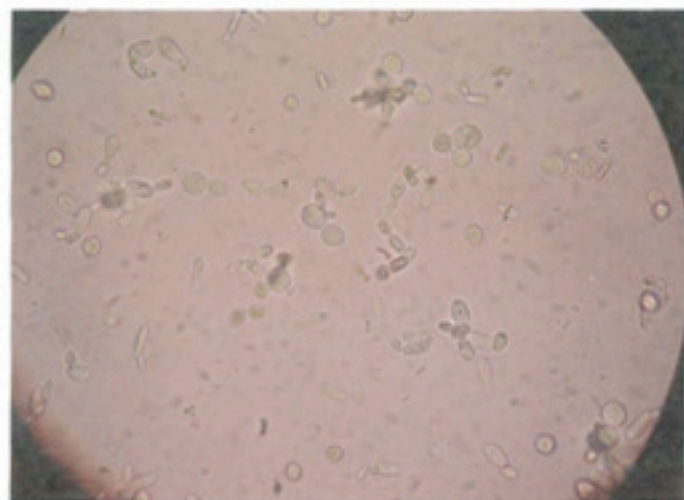
The production of cultured yeast strains, called active dry yeast (ADY), resulted in a change of focus, transforming the issue from a technical one (encouraging successful fermentation) to an economic one. From that moment on, suspicion quickly surfaced regarding commercial wine yeast: it was seen as a standardisation of taste or an attack on biodiversity.

The criticisms then and now come from advocates of the expression of terroir in wines. They believe that the native yeast naturally occurring on the grapes is capable of ensuring good fermentation. Furthermore, they argue that the diversity of natural strains ensures, year after year, the reproduction of a particular style representative of an estate and its terroir. It is indeed the case that diverse yeast strains found on grapes colonise the must and transform the sugar to alcohol. While doing this, they produce molecules (including glycerol and aromatic compounds) that give the wine additional complexity.

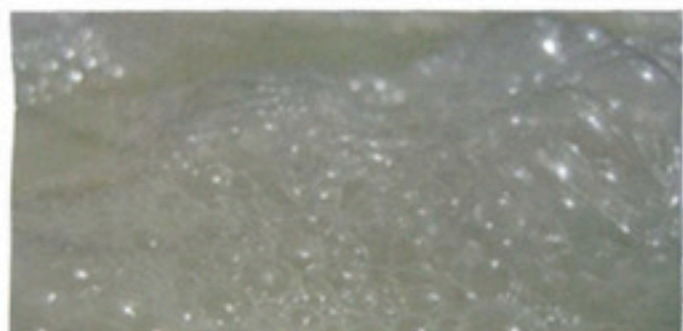
This viewpoint is very philosophically appealing. However, in practice, the result is not consistent. 'Natural yeasts' that are present when the grapes are harvested (from the vine or in the winery) will grow. But their aim is simply to increase and multiply in the fantastic environment formed by grape must. This environment contains the sugar required to provide them with energy, as well as the nutritional elements they need for their



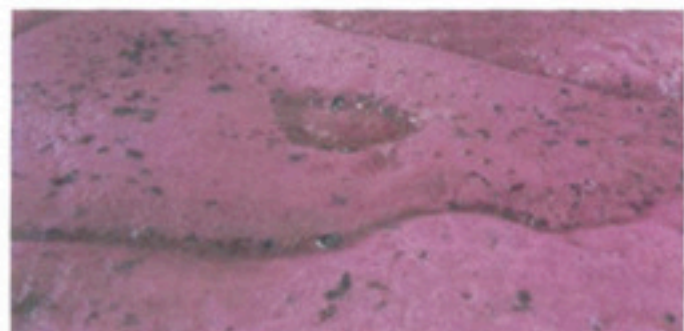
**ADY STARTER CULTURE  
(SACCHAROMYCES CEREVISIAE)**



**NATIVE YEAST STARTER CULTURE  
(NOTE THE HETEROGENEITY)**



**THE SURFACE OF WHITE GRAPE  
MUST UNDERGOING ALCOHOLIC  
FERMENTATION**



**THE SURFACE OF RED GRAPE MUST  
UNDERGOING ALCOHOLIC  
FERMENTATION**

development. These yeasts are not interested in making good wine; moreover, some are not capable of doing so. In fact, they can produce unpleasant flavours of acetic acid or simply stop working when the wine reaches a certain alcohol content. From acknowledging this to saying that using native yeast is a lottery is only a small step, and certain winemakers and oenologists have taken it blithely. Hence sparking off the debates mentioned above.

Not all organic winemakers agree with refraining from using commercial yeast. Some consider that yeast is not a principal ingredient. They feel it is more important to prioritise the grape and the best development of its intrinsic qualities. ADY is often more dependable in this respect because its effects are reproducible and the yeast has been selected for specific characteristics. Of course, the risk lies in standardising the wine by reproducing similar profiles regardless of the different raw

materials. But conversely, to risk flaws caused by native yeast would have the worse effect of lowering the standard of the wine. To avoid these flaws, organic winemakers who want to rely only on native yeast should create a *pie de cuve* (starter culture) in suitable conditions, encouraging its establishment, monitoring the fermentation process and ensuring perfect hygiene. In this way, some winemakers have been able to achieve excellent results, although they also sometimes encounter bad surprises.

A wine is not necessarily good because it is 'natural'. However, there is real intellectual and emotional satisfaction in producing wine in the most natural way possible. Paradoxically, this is a very cultural viewpoint. So nature and culture do not always stand in opposition.

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